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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/251,364
Applicant : Rapp et al
Filed : September 18, 2002
Title : Production of a Transgenic Avian By Cytoplasmic Injection

TC/A.U. : 1632
Examiner : Michael C Wilson

Docket No. : AVI-034

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop: Commissioner for Patents, P.O Box 1450, Alexandria VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on or before:

Date June 7, 2006
Signature
Name Kyle Yesland

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF LEANDRO CHRISTMANN PURSUANT TO 37 CFR 1.132 (CHRISTMANN DECLARATION)

Sir:

I, Dr. Leandro Christmann, hereby declare as follows:

1. I currently hold the position of Director of Transgenic Technology at AviGenics, Inc, located in Athens, Georgia. My professional experience and educational background are detailed in the attached Exhibit B.

2. As a co-inventor, I have personal knowledge of the invention disclosed and claimed in

the above-referenced patent application (hereinafter the "Application").

3. I understand that the Examiner rejected certain claims as being obvious over Tanaka et al, J. of Reproduction and Fertility (1994) vol 100, p 447-449 (Tanaka) in view of Naito, in Transgenic Animals, The Microinjection of DNA into Early Chicken Embryo, p 69-73 (Naito) and Love et al, Bio/Technology (1994) vol 12, p 60-63 (Love).

4. I state that using the claimed invention I have routinely achieved approximately a 20% survival rate for microinjected avians. That is, using the presently claimed methods approximately 20% of the injected ova survive to maturity. Additionally, I can state that overall less labor is needed in accordance with the claimed invention relative to *ex vivo* culturing, per egg injected. That is, there is less labor required for each embryo that is injected and implanted into a recipient hen compared to the labor required for each egg that is injected and incubated *ex vivo*. Culturing an embryo requires a number of steps (see Naito (1997) Transgenic Animals, The Microinjection of DNA into Early Chicken Embryo, page 70) and is performed over more than a three week period. Whereas, with ovum transfer, in accordance with the claimed invention, after the ovum is transferred to a recipient avian, the hard shell egg is laid the next day which is followed by a normal hatch process, requiring minimal labor and resources. In addition, AviGenics employees have attempted *ex vivo* culture method numerous times, without injecting the embryo, with none of the cultured ova surviving to maturity. I believe if made obvious by Tanaka, Naito and/or Love, the invention claimed in the Application would have been previously used and previously reported by practitioners in the field of avian transgenesis.

5. Attached Exhibit A shows data for the production of avians produced by the introduction of Bluescript vectors into an avian in accordance with the present invention. The data shows that plasmids (i.e., phagemids) such as Bluescript containing A CMV promoter linked to a heterologous coding sequence can produce germ-line transgenic avians expressing the heterologous coding sequence by using the claimed invention. In addition, one of the birds obtained in the study shown in Exhibit A has passed the transgene down through four generations to date.

6. I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed Leandro Christmann
Leandro Christmann, D.V.M., Ph.D.
Dated 05-26-06.

Exhibit A

Protein	Construct	DNA Config.	Blood (DNA) Positive/Tested	Semen (DNA) Positive/Tested	Egg White (Protein) Positive/Tested
Recombinant Antibody	Bluescript vector containing antibody Hc and Lc coding sequence linked to CMV promoters	Linear	32/132	9/62	11/70

Exhibit B

Leandro Christmann,

Director of Transgenic Technology, AviGenics Inc., Athens Georgia

Education

- Federal Rural University of Rio de Janeiro, Brazil, D.V.M., 1987, Veterinary Medicine
- Federal University of Rio Grande do Sul, Brazil , M.S., 1989, Animal Reproduction, Received Brazilian National Research Council M.S. Scholarship, Federal University of Rio Grande do Sul.
- University of Cambridge, UK , Ph.D., 1994, Developmental Biology, Received Brazilian National Research Council PhD Scholarship

Positions and Employment

1994-1998	Research Scientist, PPL Therapeutic Inc., Blacksburg, VA
1998- 2001	Principal Scientist, AviGenics, Inc., Athens, GA
2001-2003	Director of Technology Development, AviGenics, Inc., Athens, GA
2003-Present	Director of Transgenic Technology, AviGenics, Inc., Athens, GA